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New life for great works of classical music? Dilemmas about authorship of Artificial Intelligence's creations in Polish copyright law

1. Introduction

Artificial Intelligence[1] enters all areas of life and become "a new digital frontier that will have a profound impact on the world, transforming the way we live and work".[2] AI is expected to revolutionize processes across a wide range of fields[3] – medicine, military, transport, communication are just some of them. AI appears also in culture – start-ups involving AI which composes, paints or plays the instruments become more and more popular. However, these creations raise complex questions in copyright domain. Whether this AI's work is protected under copyright law and who is the author of the work are only two basics of many doubts.

Recently, a new idea of using AI in completing the unfinished works of outstanding classical composers appeared in music, contributing to the emergence of further legal problems – how to qualify a newly created work and how to describe its status in relation to an existing work?

115 years after Antonín Dvořák's death, AI called AIVA, basing on a two-page, unfinished composer's score for piano in E minor composed the three – movement symphony "From the future world".[4] The composition process of the work by AIVA consisted of several stages. The

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1 Hereinafter referred to as "AI".

2 F. Gurry, *WIPO Director General* [in:] *WIPO Technology Trends 2019 Artificial Intelligence*, World Intellectual Property Organization, Geneva 2019, p. 3.

3 F. Gurry, *WIPO*…, p. 143.

4 For more information about Dvorak- AIVA Symphony see: https://www.fromthefutureworld.cz/en, 08.11.2020.

first of them was to teach AI thirty thousand scores of Dvorak works but also of Bach, Beethoven and Mozart. In the second stage, the focus was solely on teaching AI the work of the Czech composer, and in particular on what distinguishes his work from the works of other artists. Dvorak-AIVA composition was performed by Prague Philharmonia. The Dvorak-AIVA project is not the only initiative using artificial intelligence to complete the works of classical music composers. A similar procedure was used by Huawei in relation to Schubert's Symphony VIII, originally a two-part one, to which AI composed two subsequent parts. However, in this case, the Chinese tycoon diligently guards information on the course of the composition process of the last parts of the work, as well as a collection of works that the machine used as a database. Unfortunately, the opinions about this composition remain divided. Some say that they found the motives of Mendelsohn, Smetana, Debussy or Bernstain works, but it is difficult to talk about Schubert's presence.[5] According to listeners' opinions the final two movements are considered as trivial, communicating profound ignorance of autonomous art or artistic development.[6] Despite the negative opinions about the art of artificial intelligence, the procedure of completing classical works by AI is more and more often carried out. This phenomenon affects the music environment but also presents definition and interpretation challenges for copyright law.

The subject of this article is the analysis of the concept of "work" as a result of human creative activity in the light of Act of 4 February 1994 on Copyright and related rights[7] and views expressed in the doctrine and jurisprudence regarding the conditions for granting copyright protection in the context of algorithmic creativity. The aim of this work is to answer

[5] Opinions of music critics and listeners were collected and presented by B.Puech [in:] *La Symphonie n°8 de Schubert achevée à coups d'intelligence artificielle*, https://www.lefigaro.fr/culture/2019/02/07/03004-20190207ARTFIG00169-la-symphonie-n8-de-schubert-achevee-a-coups-d-intelligence-artificielle.php, 12.12.2020.

[6] G. Richter, *Composers are under no threat from AI, if Huawei's finished Schubert symphony is a guide*, https://theconversation.com/composers-are-under-no-threat-from-ai-if-huaweis-finished-schubert-symphony-is-a-guide-111630, 12.12.2019.

[7] Act of 4 February 1994 on Copyright and related rights (Dz.U. 2019 item 1231), hereinafter referred to as "Polish Copyright Act".

the questions about the current copyright status of products created by AI, the justification for the potential revision of Polish Copyright Act and the introduction of the protection of these products as well as the wording of this revision. The legitimacy of granting legal protection to computer-generated works will be analyzed.

For this purpose, the dogmatic method based on the analysis of the text of the Polish Copyright Act, as well as EU regulations was used. The study of the literature on the subject and case law was important to establish the interpretation of basic concepts of copyright, such as "author" and "work". An analysis of recent foreign literature was helpful in characterizing current legal trends in the treatment of algorithmic creations.

Part I of this Article will discuss the main requirements – originality and individuality – indispensable in order to qualify creative product as work under provisions of Polish Copyright Act assuming that the author is a human. Furthermore, according to article 1 of Polish Copyright Act, the object of copyright shall be established in any form. However, fixation is the easiest aspect of copyrightability for AIs to meet and therefore the analysis of this requirement will be skipped. In Part II, in the context of the presented phenomenon of the completion of the works by AI, an inquiry will be carried out to check if the products created by machine meet the criteria of the originality and individuality of the work within the meaning of the Polish Copyright Act. In addition, the typology of artificial intelligence's products depending on human involvement in the creative process will be presented, as well as proposed solutions for incorporating the protection of AI's works into the legal framework.

2. Copyrightability requirements in Polish law

According to article 1 of Polish Copyright Act: The object of copyright shall be any manifestation of creative activity of individual nature, established in any form, irrespective of its value, purpose or form of expression (work).[8] In order to consider how to qualify the addition of a subsequent

[8] English version of Polish Copyright Act: https://www.wipo.int/edocs/lexdocs/laws/en/pl/pl010en.pdf, 11.12.2020.

part composed by AI to an existing work on the basis of copyright, first, it is necessary to present when the human's creation meets the criteria of the work under provisions of the Polish Copyright Act.

The concept of human as the only possible author of the work results from the traditional approach[9] to the work as a product of the humans' mind's creative process and is based on philosophical foundations of the fruits of person creative labor theory.[10] For centuries, human has been inspired by what surrounded him – nature, art, life or historical events in order to create a new work. Therefore, only a human is able to transform that inspiration into a new product – the result of creative thinking. This process should consist of author's independent, individual choices of work's elements and might not be limited by rules or technical considerations.[11] Furthermore, the creative manner to make original choices should reflect author's personality. In literature as well as in national and European rulings, terms such as "stigma of human personality"[12], "work as a product of the human intellect"[13], "work stamped with personal touch"[14] can be found which proves the absolute necessity of human presence in the creative process. It is worth to mention that the recognition of the creative product as a work within copyright provisions requires human-made creation but is not conditioned for example by the author's age, origin or education. Also, from a moral point of view, it is difficult to imagine calling the author a machine. The work is the product of human genius and can be considered as cultural heritage of every community – "When contemplating the creative, images of Beethoven, Joyce and Monet comes

[9] T.L. Butler, *Can a Computer be an Author – Copyright Aspects of Artificial Intelligence*, HCaELJ, 1982, vol. 4, p. 747.

[10] A.M. Niżankowska, *Prawo do integralności utworu*, Warszawa 2007, p. 25.

[11] Judgement of CJEU of 1 March 2012, C604/10, *Football Dataco Ltd and Others v Yahoo! UK Ltd and Others* (EU:C:2012:115), point 39.

[12] J. Barta, R. Markiewicz, *Prawo autorskie i prawa pokrewne*, Warszawa 2017, p. 30.

[13] J. Barta [et al.] [in:] *System prawa prywatnego*, vol. 13, *Prawo autorskie*, ed. J. Barta, Warszawa 2017, p. 36.

[14] Judgement of CJEU of 1 December 2011, C-145/10, *Eva-Maria Painer v Standard VerlagsGmbH and Others* (EU:C:2011:798), point 92.

to mind, not images of machinery".[15] Based on current regulations in the field of copyright, it is undoubtedly clear that only a human can be recognized as the author of a work.

a. Originality

Stating that a product must be original to be qualified as work within copyright provisions implies the necessity to define the concept of originality. The creative product should have the feature of novelty from the perspective of the creator[16] and recipient.[17] Distinguishability from other results and the context of enrichment of the affairs current state with new elements[18] are the determinants of originality. Moreover, subject matter protected by copyright has to be expressed in precise and objective manner in order to be identified in a similar way by the recipients, regardless of their experiences and sensations.[19] The condition necessary to measure the originality of the work is not the amount of the artist's effort put into the creation of the product, the criterion of originality could be met even when the level of creativity is minimal. Creativity can be manifested in the free choices[20] of elements and means needed to produce a work. Furthermore, a new product's creation can base on existing elements, organizing them into sequence or combining in innovative way in order to express author's creativity in an original manner and achieve a result which is an intellectual creation.[21]

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[15] R.D. Clifford, *Intellectual Property in the era of the creative computer program: Will the true creator please stand up*, TLR 1997, vol. 71, p. 676

[16] J. Barta and R. Markiewicz support the idea that the work should be new to its author. See: J. Barta, R. Markiewicz, *Prawo autorskie*, Warszawa 2016, p. 49.

[17] According to K. Szczepanowska-Kozłowska, novelty is achieved by the artist who, by reaching for the means of artistic expression, consciously caused a new, specific effect on the recipients; his actions cannot therefore be a mechanical choice of existing possibilities. See: K. Szczepanowska-Kozłowska, *Glosa do wyr. SN z 27.2.2009 r., V CSK 337/08*, OSP 2010, vol. 3.

[18] M. Poźniak-Niedzielska [in:] *System*…, t. 13, *Prawo*…, ed. J. Barta, pp. 8–9.

[19] Judgement of CJEU of 13 November 2018, C-310/17, *Levola Hengelo BV v Smilde Foods BV* (EU:C:2018:899), points 41–42.

[20] K. Grzybczyk [in:] P. Ślęzak, *Ustawa o prawie autorskim i prawach pokrewnych*, Warszawa 2017, art. 1.

[21] Judgement of CJEU of 16 July 2009, C-5/08, *Infopaq International A/S v Danske Dagblades Forening* (EU:C:2009:465), point 45.

It must therefore be concluded, on the basis of all of the foregoing considerations, that the criterion of originality manifested in novelty and distinguishability from other works is one of the most important prerequisites for recognizing a product as a work within the meaning of copyright.

b. Individuality

The individual character of the work is one of the elementary criterions in order to grant the copyright protection. It can be stated that insofar as the criterion of originality requires the human's authorship in an indirect way, the premise of individuality strictly determines the grant of copyright only to a human's creations. The work should present a clear personality's reflection of its creator and consequently, the artist's features reflected in the work make the product different from other, similar, intellectual creations.[22] According to W. Machała, the personal stigma which is the pillar of the individual character's definition can be reduced to a situation when, on the one hand, the work comes from a particular artist (is the result of his mental effort) and is not a copy of the previous object and on the other hand, it is not a banal, template or determined by external conditions.[23] However, D. Flisak criticizes the concept of "personal touch of author", pointing out that agreeing to recognize the artist's stigma would contribute to qualifying as work under provisions of Copyright Act only masterpieces of art, because only in their case it would be possible to assign them to a particular artist. Moreover, he also indicates that, for example, in the case of computer programs, it is advisable that the program does not reflect the individuality of the creator.[24]

In light of foregoing considerations, the criterion of individuality is a clear reference to the person of the creator, constituting a bridge connecting a certain intangible entity with a specific person in a way that justifies the node of authorship.[25] Nevertheless, it is worth pointing out

[22] K. Grzybczyk [in:] P. Ślęzak, *Ustawa*…

[23] W. Machała, *Utwór przedmiot prawa autorskiego*, Warszawa 2013, p. 180.

[24] D. Filisak, *Utwór multimedialny w prawie autorskim*, Warszawa 2008, p. 47.

[25] J. Barta [et al.] [in:] *Prawo*…, ed. J. Barta, p. 8.

that the premise of personal touch is not widely accepted and its application to all categories of works, within the meaning of copyright provisions, especially taking into account technological development, might be problematic.

3. Do works of AI meet the requirements of copyrightability?

Alan Turning, a British computer scientist, in 1950 put forward the thesis that given the proper programming a computer could think and with enough memory and speed machine could imitate a brain and originate.[26] Almost 70 years later, artificial intelligence defined as the ability of digital machines to imitate human intelligence through the use of implemented software,[27] participates in making key investment decisions for clients,[28] drives cars,[29] composes music and paints. It is certain that algorithmic authorship fundamentally challenges the notion of the romantic author – an individual human being[30] and therefore the question arises if the result of the creativity of artificial intelligence can meet the subject requirements of the work within Polish Copyright Act and fulfill the premises of originality and individuality?

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[26] B.J. Copeland [in:] *The Essential Turing: Seminal Writings in Computing, Logic, Philosophy, Artificial Intelligence, and Artificial Life: Plus The Secrets of Enigma*, ed. B.J. Copeland, Oxford University Press 2004, pp. 482–484.

[27] D. Flisak, *Sztuczna inteligencja - prawdziwe wyzwanie dla prawa autorskiego*, Rzeczpospolita, https://www.rp.pl/Prawo-autorskie/305139958-Sztuczna-inteligencja--prawdziwe-wyzwanie-dla-prawa-autorskiego.html?preview=&remainingPreview=&grantedBy=preview&, 11.11.2020. See: D. Flisak, I. Matusiak, *Ab homine Auctore Ad Robotum Auctorum* [in:] *Opus auctorem laudat. Księga jubileuszowa dedykowana Profesor Monice Czajkowskiej-Dąbrowskiej*, ed. K. Szczepanowska-Kozłowska, I. Matusiak, Ł. Żelechowski, Warszawa 2019, p. 77.

[28] The ways of making decisions relevant from the client's point of view by AI have been described in more detail by: D. Sincavage, *How Artificial Intelligence Will Change Decision-Making For Businesses*, https://www.tenfold.com/business/artificial-intelligence-business-decisions, 25.11.2020.

[29] A. Schroer, *Artificial Intelligence in Cars powers an AI revolution in the auto industry*, https://builtin.com/artificial-intelligence/artificial-intelligence-automotive-industry, 25.11.2020.

[30] M.E. Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, p. 594, https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2_Kaminski.pdf, 24.11.2020.

a. Originality

The results of machines' work are more and more often qualified as creative and innovative as well as exceeding the skills and abilities of machines' creators. J.V. Grubow in context of songs composition, compares the human brain to the algorithm of artificial intelligence, indicating that based on remembered sounds and melodies heard, acquired knowledge and practice, brain allows to compose a song. The functioning of the human brain and, consequently, the process of song composition is therefore nothing more than a kind of programming and training. But intelligence based on programming and training is not a purely human quality.[31] AI is exposed to a huge amount of data consisting of many compositions and principles of music. It learns notes, rhythm, melody and harmony. If the input is complex, the AI will create a diverse and unpredictable product. One machine will never produce two of the same compositions.[32] J.V. Grubow continues his reflections about originality of AI's works, pointing out that although human is needed in the creative process of AI, in the creation of music by human person, the influence of others is also necessary.[33] The example of teachers who shape the subsequent creative choices of musicians is one of many.

Moreover, in light of autonomous and independent creations of AI, the use of a traditional approach to the work may express some misunderstandings of machines' functioning which create independently new works without human intervention. Consequently, it calls for revisiting the term "originality". Adopting the objective approach to originality is a necessary step toward the recognition of creative robots as legal entities.[34]

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[31] J.V. Grubow, *O.K. Computer: The Devolution of Human Creativity and Granting Musical Copyrights to Artificially Intelligent Joint Authors*, CLR 2018, vol. 40, pp. 404–405.

[32] J.V. Grubow, *O.K. Computer*…, p. 410.

[33] J.V. Grubow, *O.K. Computer*…, p. 411.

[34] S. Yanisky-Ravid, L.A. Velez-Hernandez, *Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model*, MJLST 2018, vol. 1, p. 9, https://scholarship.law.umn.edu/mjlst/vol19/iss1/1, 27.11.2020.

On the other hand, it is worth mentioning the argument against AI creativity which is called "Chinese room argument". "It posits that an AI program, however programmed always lacks understanding of the meaning of the output it is creating, as it lacks ability to assign values or judgment to the symbols it processes."[35] Nevertheless, it can be assumed, that the creative products of artificial intelligence can be considered original due to, inter alia, the aspect of novelty, uniqueness or diversity of its works.

b. Individuality

AI consists of neural networks[36] that constitute individual DNA of each machine which proves their distinctness and uniqueness. When considering the individuality of AI, these neuron networks could be compared to human DNA, which means that each machine has its own unique personality. Although it is difficult to say that the machine "will stamp the work created with its *personal touch*"[37] because the term *personal* seems to be inappropriate, the individual character of the work can be identified through the prism of its distinctness from the others works. The work does not have to necessarily reflect the individuality of the creator, but that it must by itself stand out from other identical manifestations of creative activity in a way that demonstrates its peculiarity, originality and all those properties that make it more or less it is unique and has no faithful counterpart in the past.[38] Moreover, with each subsequent creative process, the machines become more experienced,[39] which also affects the development of a specific style of composing.

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[35] J. Wagner, *Rise of the Artificial Intelligence Author*, "Advocate" 2017, vol. 75, p. 531.

[36] L. Hardesty, *Reading a neural network's mind. Technique illuminates the inner workings of artificial-intelligence systems that process language*, MIT News Office, http://news.mit.edu/2017/reading-neural-network-mind-1211, 24.11.2020.

[37] Judgement of CJEU of 1 December 2011, C-145/10, *Eva-Maria Painer v Standard VerlagsGmbH and Others* (EU:C:2011:798).

[38] J. Barta [et al.] [in:] *System*…, vol. 13, *Prawo*…, p. 8.

[39] J.V. Grubow, *O.K. Computer*…, p. 410. See: J. Pavlus, *Clever Machines Learn How to Be Curious*, https://www.quantamagazine.org/clever-machines-learn-how-to-be-curious-20170919/, 13.12.2020.

However, due to technological development, the criterion of individuality can be considered as problematic in the context of potential acceptance of the non-human beings creativity. Therefore, a change or reformulation of this criterion is suggested. It could be argued that the premise of novelty can be proposed as an alternative to the requirement of individuality. Novelty of the work corresponds to both, the results of human's creativity and compositions of AI. In addition, there is no requirement to reflect the personality of the creator, which would make it easier to assess whether the product can be qualified as a work also in some categories of products created by human. Nevertheless, completely abandoning the premise of individuality in relation to human-made works seems to be too risky, consequently, it could be suggested to leave the requirement of individuality works created by human and propose a new regime that does not contain this requirement of individuality when it comes to AI products.

4. Could AI be an author?

Adopting a simple division that works created by human author are entitled to copyright, and those generated by the machine go to the public domain, leads to objection that without a fixed term of protection, developers of artificial intelligence machines are not clearly marked with incentives to continue developing and improving their capabilities.[40] It is clear that human plays less role and his/her involvement in AI's creative process, due to technological advancement, will steadily decrease. Consequently, AI works will become even better in terms of quality and value than those created by human and protected by copyright.[41]

To better describe the participation of human person and computer in the creation process, concepts such as: (1) *computer generated works*, (2) *computer aided works* and (3) *computer produced works* were raised in literature, among others by J. Barta and R. Markiewicz.[42] The first describes the

[40] See: K. Hristov, *Artificial Intelligence and the Copyright Dilemma*, IDEA 2017, vol. 57, p. 438.

[41] R.C. Denicola, *Ex Machina: Copyright Protection for Computer-Generated Works*, RULR 2016, vol. 69, p. 269.

[42] J. Barta, R. Markiewicz, *Główne problemy prawa komputerowego*, Warszawa 1993, p. 223.

case in which the work is created without any human intervention and constitutes the sole creation of the machine. The second presents situations when the computer is used by human as a tool in creation and the third one marks the co-constitution of human and computer about the work. However, now, given the development of learning machines and progressive algorithmization, there is a noticeable tendency to indicate only two categories[43] (1) computer generated works and (2) computer aided works on the basis of determining the involvement and role played in the creative process by human.

a. Computer aided works

Computer aided works base on technology which is considered as a tool for the author.[44] Consequently, CAWs do not pose any problematic issue from copyright perspective. The use of artificial intelligence in the process of creation is not a disqualification factor that will affect the recognition of the final effect as a work. However, the key issue is to check whether the creation took place with the interference of human and then determine the importance of human input into the creation. Another purpose in the context of AI's product is the problem how to determine this human's contribution and the answer to the question from what moment this contribution can be considered as sufficient to qualify the composition as a work. The boundary line of copyright protection for works created using a computer should run there where the product was created without any human interference.[45] Moreover, it should be pointed out that the one who finances the creative process, for example

[43] K. Hristov, *Artificial Intelligence and the Copyright Dilemma*, IDEA 2017, vol. 57, pp. 435–438; P. Lambert, *Computer Generated Works and Copyright: Selfies, Traps, Robots, AI and Machine Learning*, EIPR 2017, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwjErtWji9jmAhUEDuwKHW09BT4QFjAAegQIAhAC&url=https%3A%2F%2Fosf.io%2Fpreprints%2Flawarxiv%2Fnp2jd%2Fdownload&usg=AOvVaw0bb--e_HSTL_BGaEz0sBdN, 11.12.2020; R. Markiewicz, *Sztuczna Inteligencja i własność intelektualna – wykład inauguracyjny roku akademickiego 2018/2019*, https://www.uj.edu.pl/documents/10172/140821974/SI_prof_Markiewicz.pdf/35aa8d83-c295-44d4-b470-5e13888f09ea, 25.11.2020.

[44] See: A. Chakraborty, *Autorship of AI Generated Works under Copyright Act, 1957: An Analytical Study*, NULJ vol. 8, p. 38.

[45] D. Filisak, *Utwór*…, p. 44.

the construction of artificial intelligence, or the one who only performs technical functions cannot be recognized as a creator. Furthermore, it is worth mentioning that a person from whom only an idea or an incentive to create a work comes or who only indicates the direction of creative activities cannot be considered a creator.

In the case of AIVA- Dvorak Symphony the originators of project stress the importance of the human presence in the whole process: "I think that the human element is indispensable for multiple reasons. The first one is very technical and practical. There is a lot of work there that's done by humans and a lot of that work is supervised by humans. (…) Even if artificial intelligence composes everything, every single note, there still needs to be a human at end of the process to actually select the score and give meaning to that score."[46] As the Kraków Court of appeal states, making choices that affect the final effect of a work are very important and favor recognition of the work as individual.[47] In this process, artificial intelligence composes, but a human chooses the elements of the composition and has a creative influence on the final effect. The aspect of human decision-making is crucial to qualify an AIVA-Dvorak composition as a work under provisions of the Polish Copyright Act.

b. Computer generated works

Computer Generated Work can be characterized as work in which the programmer establishes the rules and instructions according to which program functions, giving the input which entail feeding the machine general parameters. However, the programmer or software' user is unable to predict the results of AI process because of creative choice of CGWs.[48] UK Copyright, Designs and Patents Act 1988 under section 178 clarifies that work is generated by computer in circumstances such

[46] R. Frankova, *Unfinished piano piece by Antonin Dvorak completed by AI programme*, Radio Prague International 2019, https://www.radio.cz/en/section/in-focus/unfinished-piano-piece-by-antonin-dvorak-completed-by-ai-programme, 11.11.2020.

[47] Judgement of Court of Appeal in Kraków of 29 October 1997, I ACa 477/97 (LEX nr 533708).

[48] A. Chakraborty, *Autorship of AI Generated Works under Copyright Act, 1957: An Analytical Study*, NULJ vol. 8, p. 38.

that there is no human author of the work.[49] What needs to be analyzed is the increasing significance of AI programs that are capable of machine learning – programs which have the capability to influence the final result of their own programming. "Machine learning represents the possibility of an AI program that creates something totally unexpected and unintended by the original programmer, and that may not need any further human involvement to be considered a commercially valuable work."[50] Having access to the Internet and databases[51] AI machine would have the possibility to select, combine and chose the information in order to generate a result and which will meet the customer expectations.

This phenomenon introduces the need to adapt copyright regulations to technological challenges. To illustrate copyright's dilemmas about authorship of artificial intelligence's creations an analysis of several concepts will follow.

First, there is a possibility to (1) disallow copyright completely which would be consistent with the traditional view of human being as the sole creator, but would contradict the recognition of technological change.[52] Failure to recognize such products as works would make them go into the public domain. "This trend could ultimately limit innovation by dissuading developers and companies from investing in Al research, resulting not only in the decline of Al but also in the decline of innovation across a number of related sectors."[53]

Secondly, a revolutionary concept that (2) allows non-human authorship and contributes to give the legal personhood to the machine[54] appeared. This concept is supported by Professor Ryan Abbott and Colin

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[49] UK Copyright, Designs and Patents Act 1988 under section 178, http://www.legislation.gov.uk/ukpga/1988/48/section/178, 13.12.2019, hereinafter referred to as "UK Copyright Act".

[50] J. Wagner, *Rise*…, p. 530.

[51] Databases prepared by programmers and containing materials on the basis of which the machine will be created, are appropriately focused on the potential end result. If the task of the machine is to compose a song, then the databases are made up of thousands of music pieces that are worked through during the process of creation by artificial intelligence.

[52] K. Hristov, *Artificial Intelligence and the Copyright Dilemma*, IDEA 2017, vol. 57, p. 438.

[53] K. Hristov, *Artificial*…, p. 438.

[54] A. Chakraborty, *Autorship*…, p. 43.

R. Davies who argue that redefinition of term "authorship" in order to include both human and non-human authors is indispensable to prevent the work created only by AI from falling into public domain and encourage technology development.[55] According to Professor Glenn Cohen, "artificial intelligence already exhibits many human characteristics. Given our history of denying robots are (like) people and have human rights".[56] However, K. Hristov emphasis that redefinition of copyright system will create "the further uncertainty by raising more questions than answers and would open a Pandora's Box of complications and future legal challenges."[57]

Only natural person who undertake the arrangements necessary for the creation of the work can be considered as the author of the work. (3) This statement complies with traditional, romantic vision of author and confirms the approach taken in UK Copyright, Designs and Patents Act 1988 Section 9 (3) provides that: in the case of a literary, dramatic musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.[58] There are only a few[59] jurisdiction that provide provisions regarding computer generated works but, it is debatable whether the proposed regulations contribute to solving the problem of authorship of artificial intelligence's creations.

Another concept worth mentioning, indicates the need for a new interpretation of terms employee and employer within the (4) works made for hire doctrine. It should be noted that the doctrine works made for hire differs from a piece of work created within the scope of employee's duties resulting from the employment relationship under provision of Polish Copyright Act. Although the same sociological and economic

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[55] See: R. Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, BCLR 2016, vol. 57.

[56] G. Cohen, *Should We Grant AI Moral and Legal Personhood?*, https://www.newworldai.com/should-we-grant-ai-moral-and-legal-personhood/, 27.11.2020.

[57] K. Hristov, *Artificial*…, p. 441.

[58] UK Copyright Act of 1988 section 9(3), http://www.legislation.gov.uk/ukpga/1988/48/section/9, 13.12.2020.

[59] Copyright Law of UK, New Zealand, Irleand, India and Honkong.

reasons of regulation, K. Grzybczyk emphasis significant differences in both systems, most of all, the way of ownership's acquisition.[60] Notwithstanding of these differences, it should be pointed out that the idea of creating a legal fiction is worth considering. This will not radically change the author's paradigm and guarantee that the copyright will belong to natural person while not inhibiting the development of innovation and new technologies. For this reason, it seems necessary to present a few assumptions derived from the American doctrine, understood as a potential way to solve the problem of qualifying AI creativity, and then to attempt to assess to what extent these solutions can be transposed and implemented in Polish copyright law.

Legal fiction created on the basis of works made for hire doctrine is considered as "one of the most effective ways to allow transfer of AI generated works to human authors".[61] The main purpose is to award copyright to a party which was not originally responsible for the creation of the work. Doctrine allows the transfer of copyright from AI to its "employer". "A relative interpretation would mean that an "employer" may be considered as someone who employs the services of another entity in order to achieve a goal or complete a task. A programmer or owner of an AI machine would satisfy this definition as he or she employs the services of the AI device in order to generate new creative works."[62] The new interpretation of WMFH doctrine would mean that the term employee will cover artificial intelligence used by the employee in the process of the creation of the work.[63] The concept has many advantages, it corresponds to the traditional vision of authorship, in which only to the humans the title of author can be awarded and at the same time they are fully responsible under the law. Moreover, doctrine made for hire doesn't allow to disclose AI participation in creative process. The doctrine is a legal fiction that effectuates a policy choice to bypass the

[60] K. Grzybczyk, *Work made for hire w porównaniu z konstrukcjami prawa polskiego*, "Rejent" 1997, vol. 72.

[61] K. Hristov, *Artificial*…, p. 442.

[62] K. Hristov, *Artificial*…, p. 447.

[63] D. Flisak, I. Matusiak, *Ab homine*…, p. 87.

author-in-fact to vest copyright elsewhere.[64] Implementation of WMFH model is advised by Shlomit Yanisky-Ravid: this proposal reflects and maintains the human features of the Al system, such as independence, creativity, and intelligence. On the other hand, "this proposal ensures that the employer or the user maintain the appropriate rights and duties, which include accountability for the outcomes of the Al system."[65] According to the doctrine of WMFH, the employer becomes the author and owner of all copyrights to the employee's work from the moment it is established. The employer and at the same time the author of the employee work can be a company, organization or individual.

In Polish copyright law, the issue of moral rights that remain with the creator-employee, while economic rights are transferred to the employer is the main problem in implementing this doctrine within the context of qualification of AI's creations. Under no circumstances the employer will be entitled to prove himself as the original creator of such an employee's work – he/she is only entitled to the economic rights to the work created under the employment relationship. An employee in accordance with Polish labor law can only be a natural person, which disqualifies the assumption that AI could be considered as employee and create a work as part of employee relations. It could be suggested to reformulate Article 12 of Polish Copyright Act[66] and indicate that in the case of AI products, basing on legal fiction

[64] A. Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, http://stlr.stanford.edu/pdf/bridy-coding-creativity.pdf, p. 26, 25.11.2020.

[65] S. Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era: The Human-like Authors Are Already Here: A New Model*, MSLR 2017, p. 671.

[66] Article 12 of Polish Copyright Law: "1. Unless this Act or a contract of employment states otherwise, the employer, whose employee has created a piece of work within the scope of his/her duties resulting from the employment relationship, shall, upon acceptance of the work, acquire the author's economic rights within the limits resulting from the purpose of the employment contract and the congruent intention of the parties. 2. If, within two years from accepting the work, the employer does not start the dissemination of the work to be disseminated under such contract of employment, the author may fix in writing a time limit for the employer to disseminate the work with the effect that upon its expiry, the rights acquired by the employer together with the ownership of the object in which the work has been fixed shall return to the author, unless the contract states otherwise. The parties may agree upon another time limit for starting the dissemination of the work. 3. Unless the contract of employment states otherwise, upon the acceptance of the work, the employer shall acquire the ownership of the object in which the work has been fixed".

and due to the lack of the author's person, AI could also be considered as an employee assuming that the employer will become the owner of both moral and economic rights to the created work. However, such a simple adoption of the work made for hire doctrine into Polish law will create too many complications in both copyright and labor law. Nonetheless, looking for the right legal solution about artificial intelligence's creations it is worth taking from this doctrine the idea of creating a legal fiction regarding the potential authorship of artificial intelligence. Consequently, the proposal to create the new term of a machine- author which would be recognized as the creator of the work in the case of AI's works should be considered. Next the machine-author would be a real author – a natural person who would have moral and economic rights to the work. When it comes to choosing which person should be the real author, the assessment of commitment to the creative process could be evaluated.

Subsequent concepts, based on current regulations, support the recognition of a (5) programmer, (6) program user, or (7) programmer and user together as the author. J. Barta and R. Markiewicz stress that the creator of the computer-generated work will be the author of the program, assuming that the user will not have a creative input in determining the work. However, if the work is creatively transformed by him, then the user will become the author of the derived work.[67] Likewise, it should be taken in consideration that granting rights to programmers, however, carries a certain risk that their power will be too large compared to other groups of people involved in artificial intelligence development. Furthermore, giving rights to both, the created program and the effect of the final creative process of AI, could allow the creation of a certain monopoly of programmers and at the same time increase the costs of this creative process and hinder users' access to works.[68] On the other hand, when choosing who would be the best possible author, we cannot forget the social benefit of this process of attributing the human authorship to the works created by AI. Assigning copyright to programmers or institutions involved in technology development would certainly be beneficial to fos-

[67] J. Barta, R. Markiewicz, *Główne*…, pp. 226–228.

[68] J.V. Grubow, *O.K. Computer*…, p. 419.

tering innovation.[69] Furthermore, it should be pointed out that there are many actors who could own the works created by AI system, inter alia, the programmers, the trainers of data providers, the feedback providers, AI's system owner, operator of AI system, buyer of the product, the government entities. However, "none of the players are entitled to ownership of the works generated by Al systems nor are they accountable for these works. Because of the features of Al systems-creative, autonomous, unpredictable, and evolving-none of the players can directly claim ownership and accountability of the works generated by Al systems. Furthermore, there are too many players involved in the process, and none of the players are the main contributor to the creation of the work."[70]

It has been argued that AI should appear as joint author (8). Firstly, it is worth mentioning that joint authorship requires mutual intent. Secondly, each individual's contribution has to be independently copyrightable.[71] The machine-authored work would likely fail both components of the legal test for a joint work.[72] Considering the fact that the copyrightability of AI's works remains still debatable and it is troublesome to indicate how to determine the machine's intentions[73] it must be stated that this solution is not acceptable.

5. Conclusion

Innovation has been a driver of human progress since the existence of mankind.[74] Artificial intelligence in art is becoming more and more present and the quality of its works is constantly improving. Due to the

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[69] K. Hristov, *Artificial*…, p. 443.

[70] S. Yanisky-Ravid, *Generating*…, p. 693.

[71] Article 10 of Polish Copyright Act: "If authors have combined their separate works in order to disseminate them jointly, each of them may request from the other authors their permissions for the dissemination of the so created whole, unless there are reasonable grounds for withholding such permissions and the contract does not state otherwise. Provisions of Article 9(2)-(4) above shall apply accordingly".

[72] R. Yu, *The Machine Author: What Level of Copyright Protection Is Appropriate for Fully Independent Computer-Generated Works?*, UPLR 2017, vol. 165, p. 1260.

[73] See: J.V. Grubow, *O.K. Computer*…, p. 421.

[74] K. Hristov, *Artificial*…, p. 433.

development, AI not only creates independent works, but while creating, interferes with already existing works, protected by copyright, as in the example of the composition Dvorak - AIVA. Traditional copyright law lacks the means to accommodate technology revolution, past considerations that recognize AI only as a tool in the creative process carried out by human are in line with the traditional human model as the only possible creator of the work, but they do not correspond with the technological changes.

When answering the questions mentioned in the introduction to this article, it should be stated that the analysis of the basic notions in the field of copyright allows us to conclude that currently, only works originating from a human are subject to the copyright protection. A work that is born in human imagination is the result of his/her knowledge and experience, and if externalized in a certain way, it should be characterized by individuality and originality. Moreover, between the creator and the work, there should be an unlimited in time and non-waiver bond that will be the subject of moral rights. Although there is no doubt in the doctrine that only a human can be the subject of rights and obligations under the current legal order, technological changes and advancement mean that a machine-generated product with only minimal, auxiliary human participation can also meet the premises of individuality and originality what was presented in this article. Moreover, it is more and more difficult to distinguish the creation of machines from that of humans due to the similar level of artistic input. It should be emphasized that with the emergence of new artistic initiatives, the way of understanding the role of artificial intelligence, previously defined as a tool used to create a work, and today as an independent creator, is changing. The legislator is faced with a choice whether, due to the mass production of computer works, to leave them unprotected, or rather to recognize the technological progress manifested in the creation of better works by AI and grant them legal protection. Therefore, taking into account the considerations presented in the article, I would argue that the revision of Polish Copyright Act and the introduction of the regulations regarding the protection of products created by AI should take place.

When analyzing how this revision could be conducted, the concept of legal fiction, in my opinion, should be considered. The solution may be to separate the subject of copyright from the issue of authorship and the question of copyright's holder and to change the criterion of individuality into the requirement of novelty when it comes to AI products. At the same time, in order to avoid the destruction of existing copyright paradigms, it is worth creating a separate protection regime for AI products by requiring the work to be original and new and leaving the individuality requirement for human-made works. Nevertheless, I would like to highlight that the study of the protection of AI products does not imply granting copyright to machines. The current state of the law, the views expressed in the literature and case law do not allow such a possibility to be considered. A certain good - result of AI's creation would meet the criterion of originality and novelty, and a separate issue would be the granting of copyright to the person the most involved in the creation process, while recognizing the authorship of the machine, understood as the fact that the human did not create this work, and even if he/her took part in the creation, the vast majority of the work was done by the machine. In this way, the requirements for the work would be separated from the issue of authorship and copyright's holder, which could be resolved at the level of legal fiction. The advantage will certainly be the official recognition of AI's creativity and qualification of AI's products as works, which will prevent them from reaching the public domain and encourage further technological development.

The introduction of a separate concept recognizing the authorship of the machine and granting copyrights to human who will possess moral and economic rights to the work will highlight the key participation of the machine in the creation process but on the other hand will not undermine the current paradigms and guarantee that in the case of an author's right infringement there will be a person who could be held liable. In my opinion, the adoption of this legal fiction could be a tendency to preserve fundamental concepts in the field of copyright with appropriate modification of the legal approach to the technological changes and relationship between the machine and human when it comes to the creation process.

New life for great works of classical music? Copyright's dilemmas about authorship of artificial intelligence's creations

Summary

A recent idea of using artificial intelligence in completing the unfinished works of outstanding classical composers became the reason to undertake an analysis of how the issue of artificial intelligence is covered in Polish copyright law and whether under the current regulations there is a possibility of recognition of machine's authorship. In context of AI's compositions, the main requirements – originality and individuality – indispensable to qualify the creative product as a work under Polish Copyright law should be revisited. In order to find a legal solution several concepts how to adapt copyright regulations to technological challenges and deal with artificial intelligence's creations are presented. Instead of reforming fundamental concepts as "author" and "work", the purpose of creating a legal fiction that the machine is the author, but the ownership is assigned to person the most involved in creative processes is worth considering.

Key words: Artificial Intelligence, work, author, copyright, innovation

Streszczenie

Niedawny pomysł wykorzystania sztucznej inteligencji do skomponowania dalszych części dzieł wybitnych kompozytorów klasycznych stał się przyczyną podjęcia analizy, w jaki sposób kwestia twórczości sztucznej inteligencji jest regulowana w polskim prawie autorskim i czy na podstawie obecnych przepisów istnieje możliwość zakwalifikowania maszyny jako autora. W tym kontekście wartym przeanalizowania są kluczowe przesłanki oryginalności i indywidualności, konieczne do zakwalifikowania produktu jako utwór zgodnie z polskim prawem autorskim. W celu znalezienia remedium jak prawnie ująć twórczość sztucznej

inteligencji, kilka wiodących rozwiązań proponowanych w literaturze zostało zaprezentowanych. Zamiast reformować podstawowe pojęcia autora i utworu, warto rozważyć stworzenie fikcji prawnej i uznanie maszyny jako autora głównego, przyznając jednak własność dzieła osobie najbardziej zaangażowanej w proces twórczy.

Słowa kluczowe: Sztuczna inteligencja, utwór, autor, prawa autorskie, innowacyjność

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